



## DEDICATION

*To our Fathers and Mothers*


*To our Families*

*To our best supervisor  
Hamzah Tahaine*

*To our Friends  
Who support and trust us*

*To whom we love  
To whom love us*

*To Mechanical Department  
In Al-Huson College  
Staff and Students*



# ACKNOWLEDGMENTS

*Firstly and Eventually,*

*Our Thanks and Praise to ALLAH for everything.*

*Our sincerest gratitude goes to Dr. Hamzah Tahaine  
who guided us with his kindness, dedicated attention,  
expertise, and knowledge throughout the study period,  
And for showing us the real meaning of being engineers  
and what is the life.*

*Our gratitude is given to our families who always  
support us with everything. And for their assistance,  
patience and understanding during the period which this  
work have been accomplished.*

*We extend special thanks to Al-Huson college staff  
especially the staff of the mechanical engineering  
department.*

*We would like to thank everyone who gave us trust,  
love, assistance and anything which encourage us.*

*All Peace to them from us.*



# ABSTRACT

The purpose of this project is exploitation of as much as possible of energy coming from the sun.

This project studies solar energy as a renewable energy and how utilizing using photovoltaic cells.

One photovoltaic system, the hybrid photovoltaic-thermal (PV/T) collector system, has been developed by several researchers over the last three decades, which produce electricity and heat, simultaneously.

Studying this system carefully -including its types- shows how it effective in residential buildings. Also, Performance analysis was performed.

The complement of this project (calculation, results and economic feasibility) will study applying this system in specific building.